

Claims

1. A method for producing perovskite particles of the formula ABO_3 , wherein A is a metal of lower valency or a mixture of metals of lower valency and B is a metal of high valency or a mixture of metals of higher valency,
characterized by the steps
 - 10 (a) dissolution of the first metal or of the mixture of metals A in an anhydrous solvent or solvent mixture and
 - (b) reaction of the solution from (a) with an alkoxide of the second metal or of the mixture of metals B of the formula $B(OR)_x$ and/or $B(OR)_{x-2}$, wherein x is the valency of the metal B and R is a linear or branched alkyl radical having 1 to 30 carbon atoms.
- 20 2. The method as claimed in any of the preceding claims, wherein the metal A is selected from the group consisting of alkali metals, alkaline earth metals and transition elements.
- 25 3. The method as claimed in claim 2, wherein the metal A is selected from the group consisting of the monovalent or divalent metals.
4. The method as claimed in claim 3, wherein the metal A is selected from the group consisting of strontium and barium.
- 30 5. The method as claimed in any of the preceding claims, wherein the metal B is selected from the group consisting of transition elements and metals of groups III and IV.
- 35 6. The method as claimed in any of the preceding claims, wherein the metal B is selected from the

group consisting of the tetravalent or pentavalent metals.

7. The method as claimed in claim 6, wherein the metal B is titanium.
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8. The method as claimed in any of the preceding claims, wherein the solvent is selected from alcohols, ketones, aldehydes and mixtures thereof.
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9. The method as claimed in claim 8, wherein an alcohol or a mixture of an alcohol with a ketone and/or aldehyde is used as the solvent.
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10. The method as claimed in any of the preceding claims, wherein the alcohol is a sterically stabilizing alcohol.
11. The method as claimed in claim 10, wherein the alcohol is benzyl alcohol.
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12. The method as claimed in any of the preceding claims, wherein the metal alkoxide in step (b) is titanium isopropoxide.
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13. The method as claimed in any of the preceding claims, wherein step (b) is carried out at a temperature of from 190 to 220°C.
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14. The method as claimed in any of the preceding claims, wherein, in step (b), a 10-100-fold excess of the solvent is present.
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15. The method as claimed in any of the preceding claims, wherein the perovskite particles obtained after step (b) have a mean size of 5-10 nm.

16. A composition of perovskite particles of the formula ABO_3 , wherein A is a metal of low valency or a mixture of metals of lower valency and B is a metal of high valency or a mixture of metals of higher valency,
5 obtainable by a method as claimed in any of claims 1-15, wherein the mean particle size is 5-10 nm.
17. The composition as claimed in claim 16, wherein
10 the standard Gaussian distribution of the particle size is less than 30%.
18. The composition as claimed in claim 16 or 17,
characterized in that it comprises BaTiO_3 , SrTiO_3 ,
15 BaZrO_3 or LiNbO_3 particles.